



JOINT STRIKE FIGHTER OVERVIEW AND THE ROLE OF MODELING AND SIMULATION



VISION

DELIVER AND SUSTAIN
THE MOST ADVANCED, **AFFORDABLE** STRIKE FIGHTER AIRCRAFT TO
PROTECT FUTURE GENERATIONS WORLDWIDE.

MISSION STATEMENT

BE THE MODEL ACQUISITION PROGRAM FOR JOINT SERVICE AND
INTERNATIONAL COOPERATION.
DELIVER TO OUR WAR FIGHTERS AN **AFFORDABLE** AND EFFECTIVE
NEXT GENERATION STRIKE FIGHTER WEAPON SYSTEM AND SUSTAIN
IT WORLDWIDE.



What is the Joint Strike Fighter?

The Next Generation “Family” of Strike Fighters

- F-16/F/A-18C “Like” Aero Performance
- Stealth Signature and Advanced Countermeasures
- Advanced Avionics, Data Links and Adverse Weather Precision Targeting
- Increased Range with Internal Fuel and Weapons
- Highly Supportable, State of the Art Prognostics and Health Management
- To Be Used by the International Community



Lethal Survivable Supportable Affordable



JSF Variants

CTOL



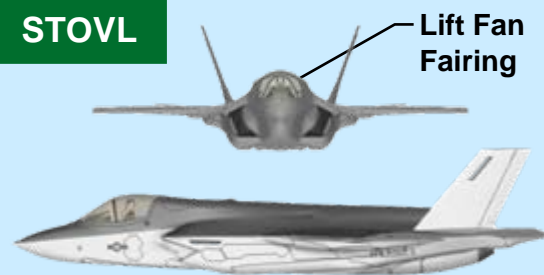
Span (ft)	35
Length (ft)	51.1
Wing Area (ft ²)	460



Weight Empty (lb)	27,100
Internal Fuel (lb)	18,073

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STOVL



Span (ft)	35
Length (ft)	51.1
Wing Area (ft ²)	460



Weight Empty (lb)	30,500
Internal Fuel (lb)	13,888

*

CV



Span (ft)	43
Length (ft)	51.4
Wing Area (ft ²)	620

Folded
Span
31.1 ft



Weight Empty (lb)	30,700
Internal Fuel (lb)	19,570

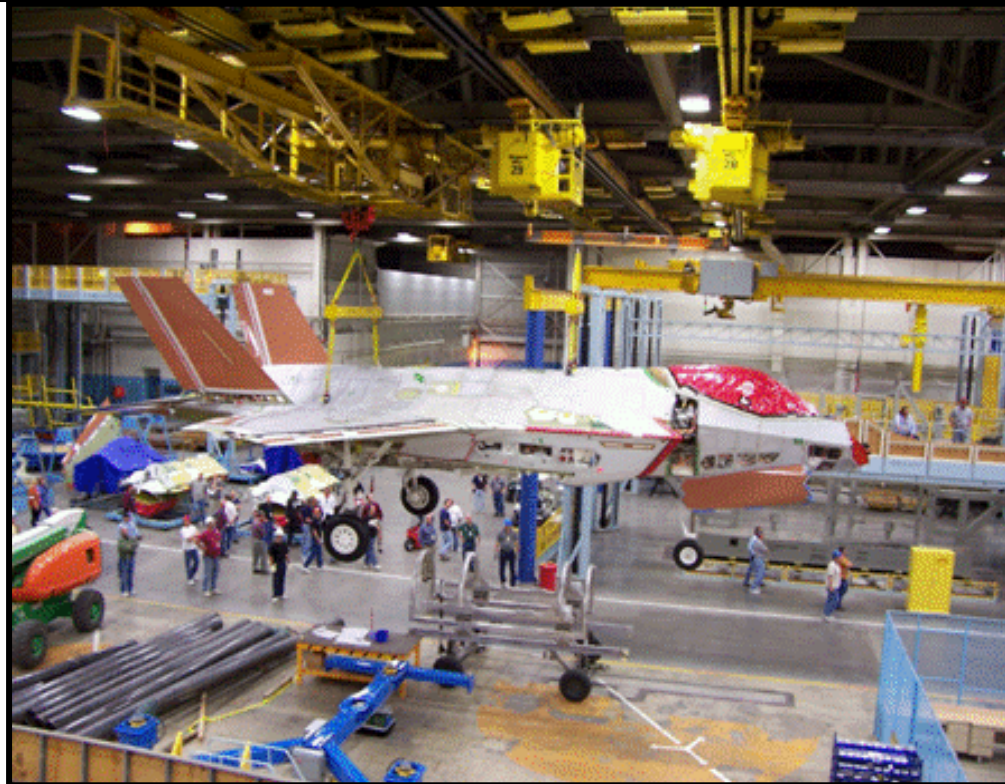
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* Projected IOC Target Weight Empty



Where is M&S Being Used at JSF?

- Design and Development -





Where is M&S Being Used at JSF?

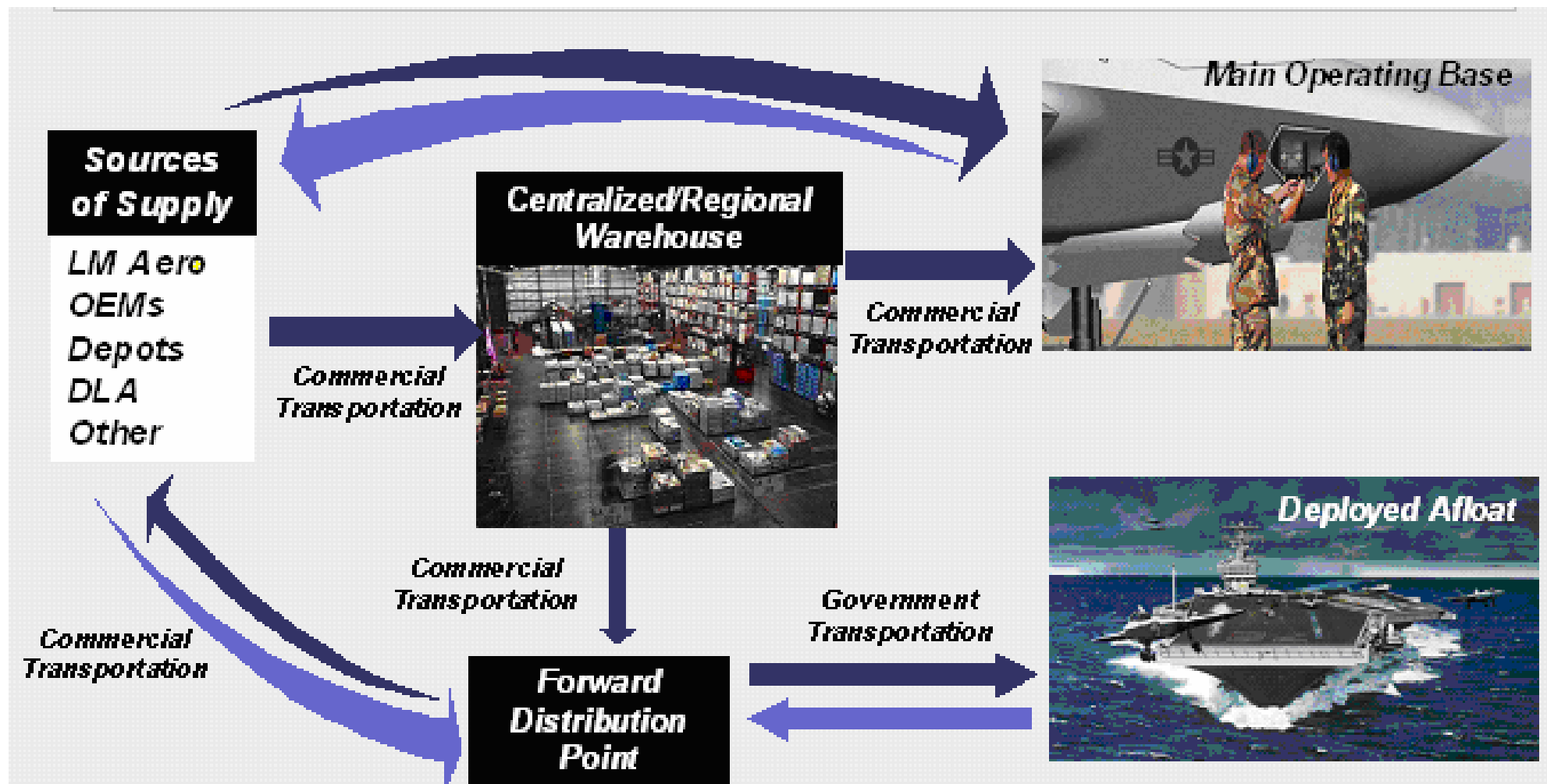
- Flight Certification -





Where is M&S Being Used at JSF?

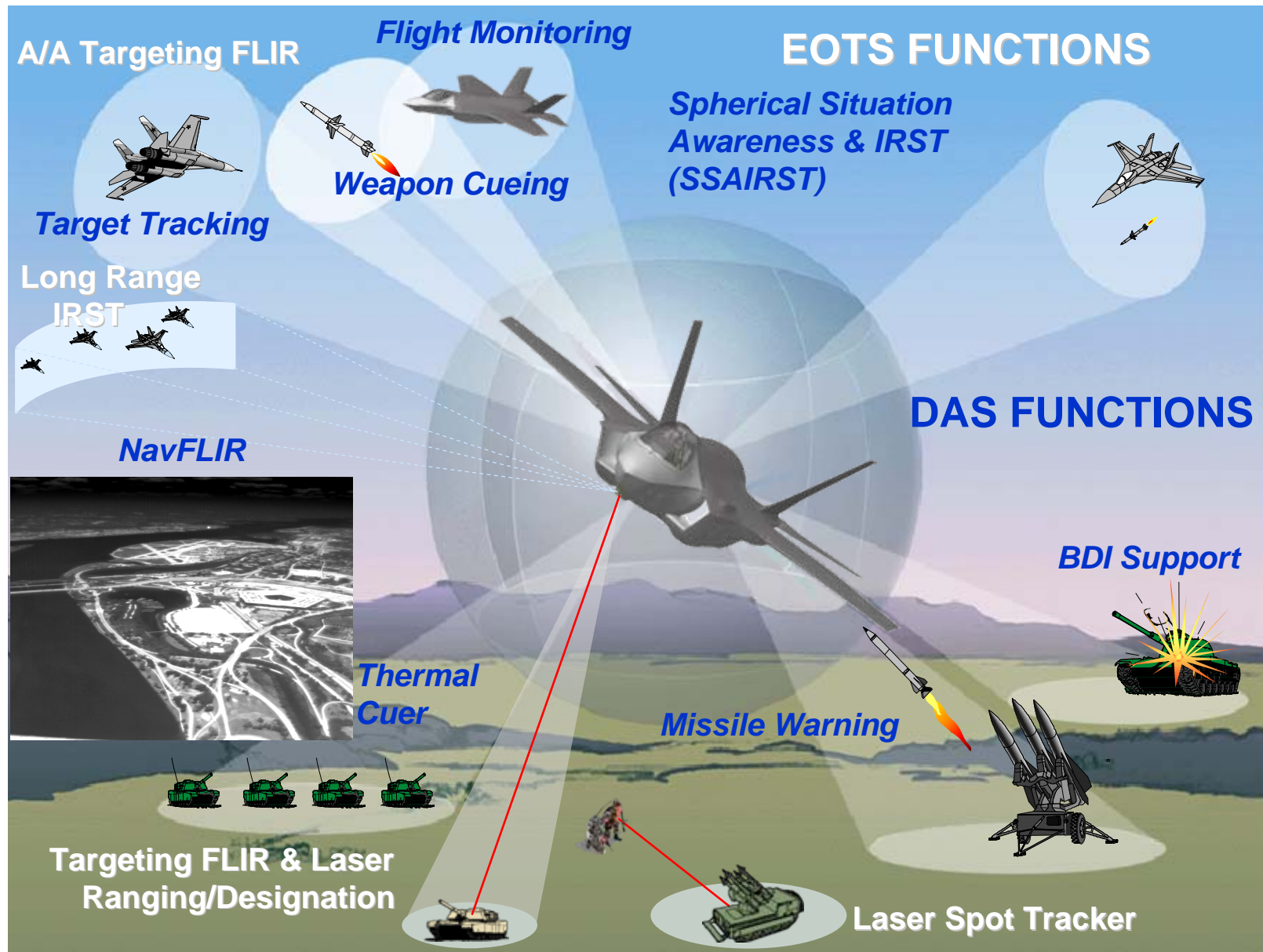
- Global Sustainment Trade Studies -





Where is M&S Being Used at JSF?

- Joint Contract Specification Verification -





Why is M&S VV&A Performed?

- **Mandated by US DoD Policy**
- **Manages risk**
- **Formal Framework for Establishing the Credibility of M&S Predictions**

“Models and simulations used to support major DoD decision-making organizations and processes (such as the Defense Planning and Resources Board; the Joint Requirements Oversight Council; and the DoD Planning, Programming, and Budgeting System) ... shall be accredited for that specific purpose by the DoD Component M&S Application Sponsor.”

DoD Instruction 5000.61 DoD Modeling and Simulation (M&S) Verification, Validation and Accreditation (VV&A), 13 May 2003 Para. 4



Definitions

- **Verification:** The process of determining that a model implementation and its associated data accurately represents the developer's conceptual description and specifications ...
“Did I build it correctly?”
- **Validation:** The process of determining the degree to which a model and its associated data are an accurate representation of the real world from the perspective of the intended uses of the model ... *“Is it valid for my intended use?”*
- **Accreditation:** The *official certification* that a model, simulation, or federation of models and simulations and its associated data are acceptable for use for a specific purpose.



Govt Roles & Responsibilities for M&S VV&A in Support of JSF

JSF Program Executive Officer ★ ★	Principal JSF accreditation authority
SV&T IPT Lead	Devolved JSF accreditation authority
	Review & endorse contract verification methods including M&S
	Review accreditation reports and make M&S accreditation decisions
JSF VV&A Policy Director	Ensure that JSF VV&A policies are defined, understood & executed
	Manage accreditation schedule and advise JPO on required resources
	Convene and co-chair the VVAAT
JSF VV&A Technical Director	Ensure that VV&A technical requirements are adequately defined
	Guide JPO & contractor on M&S suitability for specific verification applications
	Review model ASPs and perform assessments as part of the VVAAT
JASA Representative	Monitor changes in service and DOD policy on behalf of the JPO
	Serve as the JPO representative on the DMSO VV&A technical WG
	Assist JPO Technical and Policy Directors as required
JPO IPT Leads	Provide appropriate SMEs to review / define accreditation requirements
	Provide SMEs for periodic M&S reviews and review model ASPs (VVAAT)

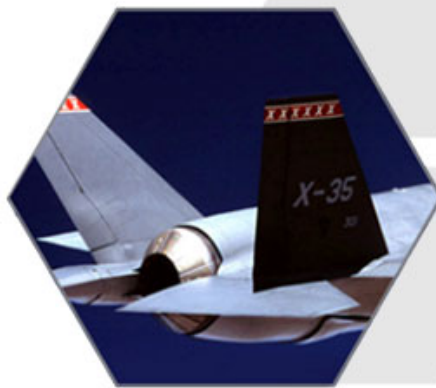


Summary

- **Legacy Aircraft Systems**
 - Rapidly Aging
 - Too Expensive to Maintain
 - Will Not Survive the Threat
- **M&S Being Used Extensively in the JSF Program to Support...**
 - Engineering design and development
 - Flight certification
 - Global sustainment trade studies
 - Contract specifications “sell off”



***WORKING TO AFFORDABLY MEET THE
REQUIREMENTS OF THE WARFIGHTER***



JSF **JOINT STRIKE FIGHTER**
the next generation strike fighter